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**Title:**

**Specific job-anxiety in comparison to general psychosomatic symptoms at admission, discharge and six months after psychosomatic inpatient treatment**

Short title:

Job-anxiety and sick leave

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## Abstract

**Objective:** Job-anxiety is a severe problem in many patients with chronic mental disorders, as it is usually resulting in specific participation problems at the workplace and long-term sick leave. The aim of this study is to explore the development of sick leave in dependence of general psychosomatic complaints and job-anxiety from admission to a psychosomatic inpatient treatment until six months after discharge.

**Method:** A convenience sample of 91 patients, suffering from multiple mental disorders filled in self-rating questionnaires on job-anxiety (*Job-Anxiety-Scale* JAS) and on general psychosomatic symptom load (*Symptom Checklist* SCL-90-R) at the beginning, the end, and six months after discharge from an inpatient psychosomatic treatment. Additionally, sick leave status and employment status before and six months after the treatment were assessed.

**Results:** 15.4% of 91 patients were on sick leave before inpatient treatment and at follow-up (SS), 20.9% were fit for work at intake and follow-up (FF), 6.6% fit for work initially and on sick leave later (FS), and 57.1% on sick leave first and working at follow-up (SF).

In regard to general psychosomatic complaints there are initially high scores on the SCL, a marked reduction during inpatient treatment, and a bouncing back to initial levels at follow-up for all four patient groups. SS and FS patients show the highest scores at intake and follow-up. Concerning job-anxiety, SS patients have the highest scores at all three assessments, while FF patients have significantly lower scores, with only low variation between assessments. SF patients start with comparatively high scores of job-anxiety, which even increase before reentering work, but decrease in the follow-up period when they are confronted with work again. FS patients start low like the FF patients at intake, reduce their job-anxiety further till discharge but increase to higher scores at follow-up.

**Conclusions:** General psychosomatic symptom load and job-anxiety show a different course during treatment and are differently related to sick leave. General psychosomatic symptom

load can be understood as a measure for the degree of the chronic illness status, whereas job-anxiety reflects specific additional context-related problems, i.e. problems with work. A core finding is that job-anxiety is related to work avoidance, but work exposure may reduce job-anxiety. This has direct consequences for putting patients on sick leave or not.

**Keywords**

Job-anxiety, anxiety disorders, sick leave, participation disorders, return to work, rehabilitation

## Introduction

Chronic mental disorders like anxiety disorders, depressive disorders or adjustment disorders are often associated with problems at the workplace [1-10]. A special type of problems are workplace-related anxieties [11-13]. These specific anxieties are often associated with work-related participation disorders like presenteeism [14], or absenteeism which can result in (long-term-)sick leave [9, 15].

The development of workplace-related anxieties can on one hand be explained by the fact, that anxiety disorders or general not work-related anxiety will also affect the workplace and lead to problems in this specific context [6, 2]. On the other hand an explanation for workplace-related anxiety is the fact that workplaces usually hold many anxiety-provoking features like achievement aspirations, evaluation by superiors, rivalries between colleagues, offensive customers, or dangers to health by working conditions [12, 15-17]. It could be shown that work-related anxieties can be differentiated from other conventional forms of anxiety and from other complaints about general psychosomatic symptoms [13, 18].

It has also been shown that work-related anxieties are associated with sick leave absence more strongly than conventional anxieties [18]. This can be explained by the fact that in workplace-related anxieties the typical avoidance behavior often presents as sick leave. In a study in psychosomatic rehabilitation inpatients about two thirds of patients were suffering from workplace-related anxieties, and 17% could not imagine even to walk along the street where the workplace is without a panic reaction [11, 19]. Sick leave is in such cases the only legal possibility to stay away from the workplace for a longer duration, and only in the context of workplace-related anxieties sick leave gets this specific function as avoidance behaviour. When being on sick leave the patient is not exposed to the anxiety-provoking stimuli so that anxiety will be reduced. But, anxiety will increase more and more with every new confrontation with the workplace.

Given the fact that sick leave and workplace-related anxieties are specially interrelated, the aim of this investigation is to study work-related anxiety and sick leave longitudinally. We assessed the status of work ability (i.e. whether the person is on sick leave or not) at admission and six months after a 6-week psychosomatic inpatient treatment. The relation between sick leave and the course of job-anxiety on the one hand, and sick leave and psychosomatic complaints on the other hand was investigated.

The question of research in this study is whether job-anxiety and general psychosomatic complaints are similarly or differently associated with the sick leave status over the course of time.

## **Method**

### *Clinical setting*

The study was done in a psychosomatic inpatient unit. Patients with chronic mental disorders like depression, anxiety or adjustment disorders are admitted here on initiative of health and pension insurance when their work ability is endangered. They are treated as inpatients on average for six weeks. The basic treatment programme consists of individual- and group-psychotherapy, sport therapy and general social counselling. As special emphasis is given to work-related problems and vocational reintegration patients are offered work-directed group therapies on conflict management, or time management at work, or a training for applying for a new job, or individual social counselling, or a work-test in a real workplace in cooperating companies nearby.

### *Procedure of the investigation*

Participants filled in a self-rating questionnaire on job-related problems (*Job-Anxiety-Scale* JAS, [20, 21]) and on general psychosomatic symptoms (*Symptom Checklist* SCL-90-R, [22]) shortly after admission to the hospital (t1), at discharge (t2), and six months later (follow-up, t3). Diagnoses were assessed with the structured diagnostic M.I.N.I. interview based on the criteria of DSM IV [23]. Sociodemographic information and information on the work status was assessed in the clinical intake interview.

### *Instruments*

Work-related anxieties were assessed with the 70 items self-rating *Job-Anxiety-Scale* (JAS, [20, 21]) which covers five main dimensions: *Stimulus-related anxieties and avoidance behaviour* include anticipatory anxieties with feelings of strain when being at the workplace or in anticipation of situations or events at the workplace, phobic avoidance of work situations, conditioned or posttraumatic anxiety, global feelings of anxiety toward the workplace. *Social anxieties* include interactional anxiety, i.e. fears when confronted with colleagues or superiors, ideas of persecution or bullying and fears of exploitation. *Health-related anxieties* include hypochondriac anxieties and the idea that working conditions endanger health, experience of panic or other somatic symptoms while being at work, and functional impairment, i.e. the fear that one's own ill health impairs work performance. *Cognitions of insufficiency* include the feeling of insufficient qualification, work overload, or lack in knowledge, and fear of change or feelings of insecurity because of impending changes at the workplace. *Job-related worries* include generalised worrying about minor matters concerning the workplace, as well as worries about the job security and future. The items are rated on a Likert-scale from "0 = no agreement" to "4 = full agreement". Retest reliability is .815, Cronbach's alpha .98. The scale has been validated with an interview on workplace-related anxieties as criterion [13]. The *Job-Anxiety-Scale* is given to patients under the title „A questionnaire on workplace-related problems“ and as a scale which examines „situations,

thoughts and feelings one can experience at the workplace”. Patients were asked to refer to their present or – if they were presently unemployed – to their last workplace. In case they had more than one workplace, they were asked to refer to the workplace which was most important for them and had most influence on their daily life and well-being. The mean score over all the 70 items can be used as an overall score for the degree of job-anxiety.

General psychosomatic symptom load was assessed with the *Symptom Checklist* (SCL-90-R, [22]), a self-rating questionnaire which covers 90 unspecific complaints on the subscales: somatization, compulsiveness, uncertainty in social contacts, depressive tendencies, general anxiety, aggressiveness, phobic anxiety, paranoid thinking and psychoticism. Patients have to give a rating of severity for each symptom on a scale from 0 (symptom not occurring) to 3 (very severe).

The *sick leave status* (whether presently on sick leave or fit for work) has been assessed at admission (t1) and six months after discharge (t3) by self-report of the patients. “Sick leave certificates” are given by physicians when a patient is unable to fulfill his/her duties at work because of an illness. Respective patients have to present these sickleave certificates to their employer or the state work agency in order to get their payments or unemployment benefits.

At t3 patients were additionally asked for changes in their working conditions during the follow-up period (e.g. whether they had lost their workplace, or got a new workplace, or still have their old workplace), for problems at their present or last workplace, and for the significance of a workplace for themselves (I need a workplace for earning money, or for self-development, or I do not need a workplace).

### *Participants*

A convenience sample of 131 psychosomatic inpatients filled in the questionnaires at admission (t1) and at discharge (t2). 91 patients (69.5%) answered the follow-up questionnaire at t3. Patients who responded at follow-up had less work-related therapies during the rehabilitation treatment (1.23 [ $SD=0.9$ ] versus 1.58 [ $SD=0.97$ ],  $p=0.49$ ), and showed a trend to lower job-anxiety scores at t1 (1.53 [ $SD=1.0$ ] versus 1.84 [ $SD=1.0$ ],  $p=.092$ ).

The following data analysis is based on those 91 patients with complete follow-up-data, as the primary goal was to compare work ability, symptom load, and job anxiety in the follow-up period.

74.4% of the 91 participants were women, the average age was 46.8 years ( $SD = 8.5$ , range from 21 – 61 years). 97% of the patients were employed as white-collar-workers at their last or present workplace. 69.3% were presently employed, 30.7% were unemployed or on pension. Those who were without workplace had significantly higher scores in job-anxiety as well as in general psychosomatic symptom load (t1:  $JASa_{employed}=1.28$  ( $SD=0.9$ ) versus  $JASa_{unemployed}=1.95$  ( $SD=1.2$ ); t1:  $SCLa_{employed}=0.93$  ( $SD=0.6$ ) versus  $SCLa_{unemployed}=1.38$  ( $SD=0.7$ )). They were also more often on sick leave at follow-up (t3: sick leave<sub>employed</sub>=18% versus sick leave<sub>unemployed</sub>=30%).

According to the M.I.N.I interview [23] 80% of the participants fulfilled the criteria for one or two mental disorders, and 20% had three to six diagnoses. 37.8% were suffering from a depressive episode, 14.4% an agoraphobia and/or panic disorder, 7.8% a social phobia, 7.8% an obsessive compulsive disorder, 22.2% a generalized anxiety disorder, 3.3% a somatization disorder, 6.7% a hypochondriasis, and 3.3% an addiction disorder (alcohol or drugs or eating disorder). The distribution of diagnoses as well as the patient characteristics are typical for patients in respective psychosomatic rehabilitation hospitals [24-26].

### *Data analysis*



Patients were divided in four groups according to their sick leave course: SS: Sick leave before admission and sick leave at follow-up, SF: Sick leave before admission and fit to work at follow-up, FS: Fit for work before admission and on sick leave at follow-up, FF: Fit for work before admission and fit for work at follow-up.

Data were analyzed with SPSS. ANOVA and  $\chi^2$ -Tests were used to investigate means differences and differences of frequencies between the four groups. All statistical tests were two-sided and the alpha-level of significance was set to be  $p < .05$ .

#### *Informed consent and ethics*

The study was reviewed and approved by the internal review board of the German Federal Pension Agency (Deutsche Rentenversicherung Bund). All patients who were admitted to the hospital got written information about the study, including the fact their participation was fully voluntarily. They were asked for their written informed consent.

## **Results**

#### *Patient characteristics*

15.4% of 91 patients were SS, 20.9% were FF, 6.6% were FS, and 57.1% were SF patients. 57.6 % of patients who had been on sick leave before admission had been fit for work six months after discharge. 89.7% of those who had been fit for work before admission were also fit for work at follow-up, although they also had been referred to inpatient treatment because their ability to work was endangered.

Table 1 shows the work-related characteristics of the four groups of patients. There are no statistically significant differences between the four groups over the course of time. However, some striking aspects in the distributions should be mentioned: In line with the classification criterion, SS and FS patients reported to have more often problems with sick leave absence than the FF and SF group. Additionally, the SS group has twice as much problems with colleagues and superiors in comparison to the other groups. The majority of FF and FS patients still have the same workplace at follow-up as before. SF patients had more often a new workplace in comparison to the other patients, and SS patients were comparatively more often unemployed.

[insert figure 1 about here]

### *Job-Anxiety*

Figure 1 shows the scores for job-anxiety and psychosomatic complaints for the four groups at admission, discharge, and follow-up.

SS patients have the highest scores of job-anxiety at all three assessments (t1: M=2.14 (SD=1.25), t2: M=1.82 (SD=1.27), t3: M=2.08 (SD=1.3)), while FF patients have continuously low scores (t1: M=1.27 (SD=0.9), t2: M=1.19 (SD=0.86), t3: M=1.27 (SD=0.87)). In both groups there is not much variation between the three assessments.

SF patients start with comparatively high scores on the JAS. The scores increase at discharge before reentering work, and decrease in the follow-up period, in which they are back at work (t1: M=1.73 (SD=1.08)), t2: M=2.0 (SD=1.0), t3: M=1.44 (SD=0.79)). The FS patients start low like the FF patients at intake, reduce their job-anxiety further until discharge, but then jump back to relatively higher scores at follow-up (t1: M=1.05 (SD=0.5)), t2: M=0.56 (SD=0.2), t3: M=11.35 (SD=1.0)).

### *Psychosomatic complaints*

As compared to JAS scores, there is a different pattern of changes for the SCL scores over the course. In all groups there is a marked reduction in scores under treatment (t2: SS: M=0.57 (SD=0.46), SF: M=0.63 (SD=0.47), FF: M=0.68 (SD=0.58), FS: M=0.72 (SD=0.52)) and a bouncing back to initial levels at follow-up. Patients who are on sick leave at follow-up (SS and FS) show the highest scores not only at follow-up but also initially as compared to patients who are fit to work at follow-up (SS t1: M=1.42 (SD=0.6), SS t3: M=1.48 (SD=0.74), FS t1: M=1.56 (SD=1.0), FS t3: M=1.43 (SD=1.0)).

## **Discussion**

### *Psychosomatic complaints and sick leave over the course of time*

A first finding is that inpatient treatment results in a marked reduction in overall psychosomatic complaints in all groups, independent from work ability status and degree of severity of the psychosomatic symptoms. This phenomenon can be explained as a result of specific treatments and of having the patients in a therapeutic milieu [27, 28], where they are away from home, in a sheltered and supportive environment and free of pressures and work demands. However, when they are reexposed to their home environment, they are again suffering from the same symptoms of distress as before.

Secondly, patients with sick leave at follow-up (SS, FS) show higher scores in psychosomatic complaints at admission than those who are fit for work at follow-up (FF, SF). This is independent from the work ability status with which they come. The severity of general psychosomatic symptoms in the long-run must therefore be seen as an indicator of the general severity of the chronic psychosomatic condition, which seems to predict the further long-term course of work ability.

### *Job-anxiety and sick leave over the course of time*

A third finding is that there is a different pattern in the course of job-anxiety than in the course of general psychosomatic complaints: Those patients who come on sick leave (SS, SF) show higher job-anxiety scores than those who come fit for work. A marked decrease in job-anxiety during treatment and an increase at follow-up is seen only in patients who are on sick leave at follow-up (SS, FS).

Of special interest is the SF group, i.e. patients who were on sick leave before admission and became fit for work after discharge. Their job-anxiety scores increase from admission to discharge, which can be explained by being confronted with work again, i.e. being discharged as fit for work, having to return to their workplace, or even searching for a new workplace. After being back at work the score decreases to the range of the FF patients. These findings are in line with other reports from the literature: It was found that patients who underwent a training to regain the work ability showed in the end a higher degree of symptoms than controls, but were nevertheless in the end better integrated in work [29, 30]. Exposure to work seems to be a way to reduce job-anxiety. Job-anxiety and avoidance of work therefore should not be a reason to put patients on sick leave, but rather to confront them with the feared stimulus and train their abilities to cope with work-related distress [31-34].

### **Limitations**

This study has been done in patients with psychosomatic disorders. Further research should be directed to other patient samples also like somatic illnesses, or non-clinical populations.

As patients who did not answer the follow-up questionnaire had somewhat more job-related problems, there could be a bias which limits the generalizability of results.

Additional to observational and correlational data, controlled and specific treatment studies are needed to test the functional relation between job-anxiety and ability to work.

## **Conclusion**

General psychosomatic symptoms on one hand and job-anxiety on the other hand show a different course during treatment, and are differently associated with sick leave during treatment and follow-up. This suggests that they are different phenomena and must be assessed and interpreted differently.

General psychosomatic symptom load reflects a general state of (chronic) mental illness, independent from specific work-related additional problems.

In contrast, job-anxiety is a specific context-bound anxiety and is directly related to the acute status of sick leave. Work exposure after a period of sick leave can first lead to an increase of job-anxiety and then a decrease. The major conclusion therefore is that job-anxiety should not justify job avoidance in the form of sick leave. Therapeutic interventions should try to activate a patient's coping resources.

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**Table 1.** Workplace status characteristics of psychosomatic inpatients (N=91). Relative frequencies and group differences calculated with  $\chi^2$ -Test  
(SS: Sick leave before admission and sick leave 6 months after discharge; SF: Sick leave before admission and fit for work 6 months after discharge; FF: Fit for work before admission and fit for work 6 months after discharge; FS: Fit for work before admission and on sick leave 6 months after discharge)

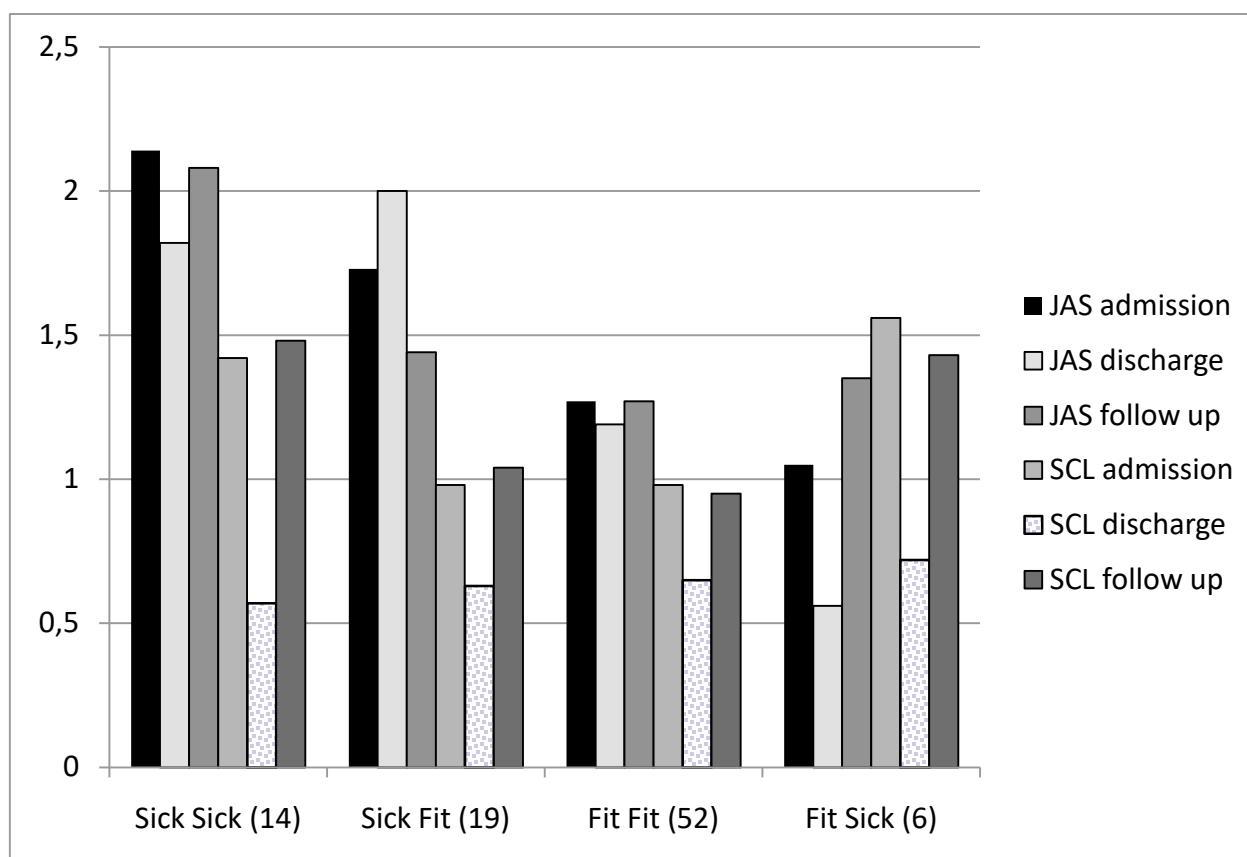
	SS (N=14)	SF (N=19)	FF (N=52)	FS (N=6)	Kruskal- Wallis-Test  $\chi^2$ (signifi- cance)
<b>Age</b>	49.36 (9.7)	48.0 (6.3)	46.3 (8.3)	42.2 (12.0)	F=1.22 (.307) <sup>1</sup>
<b>Sex female</b>	64.3%	68.4%	75%	100%	3.06 (.382)
<b>Highest education level</b>					0.72 (.869)
No school leaving certificate	7.1%	0%	0%	0%	
10-13 classes/high school	78.6%	84.2%	86.5%	100%	
University	14.3%	15.8%	13.5%	0%	
<b>At my present (if unemployed: remembering my last) workplace I have (had) problems with</b>					
Sickness absence times	42.9%	26.3%	16.3%	66.7%	9.71 (.021)
Colleagues or superiors	64.3%	16.7%	32.0%	33.3%	9.36 (.025)
Amount of work	42.9%	22.2%	26.1%	0%	4.16 (.244)
Type of work	35.7%	22.2%	15.2%	16.7%	3.03 (.386)
Environmental conditions	30.8%	44.4%	36.2%	33.3%	1.02 (.794)
<b>I am presently employed.</b>	50%	55.5%	76.4%	83.3%	5.79 (.122)
<b>Has your employment status changed since discharge?</b>					6.7 (.082) <sup>2</sup>
<u>If presently employed:</u>					
I still have my old workplace	42.9%	44.4%	72.5%	83.3%	.00 (1.00)
I have a new workplace	7.1%	11.1%	3.9%	0%	.00 (1.00)
<u>If presently unemployed:</u>					
I was without workplace at discharge and I am also presently without workplace.	35.7%	22.2%	17.6%	0%	.00 (1.00)
I had a workplace at discharge, but I am presently without workplace.	14.3%	23.2%	5.9%	16.7%	.00 (1.00)
<b>Which personal meaning has a workplace for you?</b>					2.02 (.569) <sup>2</sup>
I need a workplace for earning money.	71.4%	57.9%	85.7%	66.7%	.00 (1.00)
I need a workplace for self- development.	21.1%	26.3%	10.2%	33.3%	.00 (1.00)

<sup>1</sup> For this linear variable an ANOVA has been calculated, the F-value and *p* significance-level are shown.

<sup>2</sup> Overall significance of differences between the four groups over all answer categories of this item. In the following the differences of the absolute frequencies are calculated additionally (e.g.

I do not want or do not need a workplace.	7.1%	15.8%	4.1%	0%	.00 (1.00)
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**Figure 1.** Psychosomatic complaints (SCL-90) and job-anxiety (JAS) at admission, discharge and follow-up 6 months after psychosomatic inpatient treatment (N=91)



**Table 2.** Job-anxiety and general psychosomatic symptom load over the course: at admission, at discharge and follow-up six months after psychosomatic inpatient rehabilitation (N=91). Means (and standard deviation in brackets) are reported. Tests of significance: *p*-values of the differences between patients groups calculated with ANOVA (Bonferroni corrected); differences of mean scores at admission, discharge, follow-up within the groups (dependent samples)

SS: Sick leave before admission and sick leave 6 months after discharge; SF: Sick leave before admission and fit for work 6 months after discharge; FF: Fit for work before admission and fit for work 6 months after discharge; FS: Fit for work before admission and on sick leave 6 months after discharge

<sup>a</sup> SS versus FF

<sup>b</sup> FF versus SF

<sup>c</sup> SF versus FS

<sup>o</sup> overall significance

	SS (N=14)	SF (N=19)	FF (N=52)	FS (N=6)	Sig. of difference between the groups ANOVA
<b>JAS a admission</b>	2.14 (1.25)	1.73 (1.08)	1.27 (0.9)	1.05 (0.5)	<sup>o</sup> .014 <sup>a</sup> .024
<b>JAS d discharge</b>	1.82 (1.27)	2.0 (1.0)	1.19 (0.86)	0.56 (0.2)	<sup>o</sup> .009 <sup>a</sup> .354 <sup>b</sup> .051 <sup>c</sup> .057
<b>JAS f follow-up</b>	2.08 (1.3)	1.44 (0.79)	1.27 (0.87)	1.35 (1.0)	<sup>o</sup> .049 <sup>a</sup> .033
<b>Sig. of difference in JAS a d f</b>					
JASa-JASf	.610	.102	.962	.353	
JASa-JASd	.056	.868	.392	.056	
JASd-JASf	.180	.057	.902	.026	
<b>SCL a admission</b>	1.42 (0.6)	0.98 (0.47)	0.98 (0.65)	1.56 (1.0)	<sup>o</sup> .078
<b>SCL d discharge</b>	0.57 (0.46)	0.63 (0.47)	0.68 (0.58)	0.72 (0.52)	<sup>o</sup> .964
<b>SCL f follow-up</b>	1.48 (0.74)	1.04 (0.79)	0.95 (0.8)	1.43 (1.0)	<sup>o</sup> .120
<b>Sig. of difference in SCL a d f</b>					
SCLa-SCLf	.388	.684	.845	.412	
SCLa-SCLd	.017	.059	.000	.129	
SCLd-SCLf	.031	.075	.018	.127	